DOCUMENT RESUME

ED 165 030 CG 013 089

AUTHOR Munoz, Raul A.; And Others
TITLE Educational Variables and Drug Use Among Puerto Rican Adolescents.
SPONS AGENCY National Inst. on Drug Abuse (DHEW/PHS), Rockville, Md.
PUB DATE Mar 78
GRANT 1-R01-DA-00738
NOTE 25p.; Paper presented at the Annual Convention of the American Personnel and Guidance Association (Washington, D.C., March 19-23, 1978); For related documents see CG 013 087-090

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Academic Aspiration; Adolescents; *Alcoholism; *Drug Abuse; *Educational Attitudes; Intervention; Low Achievers; *Occupational Aspiration; *Puerto Ricans; Research Projects; Screening Tests; *Sex Differences; Student School Relationship
IDENTIFIERS *Puerto Rico

ABSTRACT

A longitudinal study of educational variables and drug use was conducted by interview with 635 young Puerto Rican adults. Half had been selected as representing a "high risk" population, half a "normal risk" population. Correlational analyses revealed that the use of all drugs was associated with a negative attitude toward school among both sexes. Academic performance was poorer for males who later had greater involvement with all drugs, but this effect was less consistent among the females. Inconsistent results for the two sexes were also observed on the effects of educational and occupational aspirations on drug usage. Discriminant function analyses, aimed at predicting drug preference from academic characteristics yielded significant functions for males, but not for females. Two significant functions found for males indicated that occupational aspirations were most discriminating among drug usage categories. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED165030

EDUCATIONAL VARIABLES AND DRUG USE AMONG PUERTO RICAN ADOLESCENTS[1]

Raúl A. Muñoz

Health and Social Studies, Inc.
527 Sergio Cuevas Bustamante
Hato Rey, Puerto Rico 00918

Alexander A. Olsen

Laboratory for Statistical and Policy Research
Boston College

Ronald L. Nuttall

Laboratory for Statistitical and Policy Research
Boston College

Ena Vázquez Nuttall

University of Massachusetts - Amherst

Paper presented at the American Personnel and Guidance Association Meeting, March 1978.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

E Nuttall

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

1 This research was supported by Grant 1 R01 DA 00738 from the National Institute on Drug Abuse; Alcohol, Drug Abuse, and Mental Health Administration, DHEW.

CG013089

EDUCATIONAL VARIABLES AND DRUG USE AMONG PUERTO RICAN ADOLESCENTS

Raûl A. Muñoz, Alexander A. Olsen, Ronald L. Nuttall and Ena Vázquez Nuttall

ABSTRACT

A longitudinal study of educational variables and drug use was conducted by interview with 635 young Puerto Rican adults. Drug usage was obtained by interview in 1975-76, while academic variables were obtained by examining school records and by questionnaire in 1968 when the young people were enrolled in secondary schools in the Bayamón Norte school district in Puerto Rico. Half of the sample selected to be interviewed were selected to be at "higher" risk of drug involvement and half were selected to be at "normal" risk of drug involvement.

Correlational analyses revealed that the use of all drugs was associated with a negative attitude toward school among both sexes. Academic performance was poorer for males who later had greater involvement with drugs. but this effect was less consistent among the females. Inconsistent results for the two sexes were also observed on the effects of educational and occupational aspirations on drug usage.

Discriminant function analyses, aimed at predicting drug preference from academic characteristics, yielded two significant functions for males but none for females. For the males, the occupational aspiration variables were most discriminating among later drug usage patterns.

EDUCATIONAL VARIABLES AND DRUG USE AMONG PUERTO RICAN ADOLESCENTS

This study is concerned with the relationship between educational variables and the use and involvement with various drugs ranging from cigarettes to heroin. The educational variables include self-reported measures pertaining to academic performance, attitude toward school, educational and occupational aspirations, as well as measures of aptitude, achievement, and performance from school records.

In terms of the literature pertaining to the relationship between academic performance and drug use, there have been inconsistent findings. However, the majority of the literature indicates that high drug use is associated with poorer academic performance, particularly for junior or senior high school populations. Studies reported by Johnston (5), Hager (3), and Hemmuski, Rissanan and Mattilla (4) have found, for junior-senior high school students, that more frequent drug use is associated with poorer academic performance and scholastic achievement.

Studies which have focussed on attitude toward school measures as related to drug use for the most part indicate consistent findings. Blum and Associates (1) report that users of drugs from tobacco to opiates have a common dislike for school; they are dissatisfied with their courses, their teachers, with school itself, and are less interested in social activities at school. Carney, Timms and Stevenson (2) found a particularly high rate of truancy among drug users in their last year of schooling. An investigation by Tec (11) into marijuana usage and alienation of students in high school indicated that those who studied more were much less likely to use marijuana than those who spent little time studying. With regard

to the number of school changes by students, Johnston (5) reports that a greater number of changes from one school to another is associated with higher drug use. Mitchell, Kriby and Mitchel (7) investigated drug use by off campus college freshmen and found that academic stress and anxiety were major motivating forces for a person using drugs. In terms of the issue of private versus public education and drug use levels, Rosenberg, Kasl, and Barberian (10) used a sample of 8700 junior and senior high school students and examined the usage of various drugs by sex and school type. For females, usage of all drugs, except glue and cocaine, was lower among those in private religious schools. For males, usage of all drugs, except for glue, was lower amonth those in private religious schools.

For Educational Aspirations of adolescents and drug use, Wiener and Egan (12) found that educational morbidity was very high for addicts with 67 percent of their subjects having dropped out of school. These authors based their study on predominantly black and Puerto Rican drug addicts and noted, for the Puerto Rican addicts, that the use of a variety of other drugs, concurrently with heroin, seemed to prevail.

Kaplan and Meyerovitz (6) conducted an investigation which encompassed both occupational aspirations and attainment as psycho-social correlates of drug use. These authors compared addict and nonaddict populations and concluded that addicts had held much lower aspirations for their future occupations, tending toward skilled or unskilled blue collar employment as opposed to the higher aspirations for white collar employment held by normal subjects. As for occupational attainment, addicts tended to hold semi-skilled and unskilled positions as opposed to more professional occupations among the nonaddicts.

Hypotheses

This study was designed to test the following hypotheses:

H_1: Adolescent children who are characterized by poor academic performance will tend to have greater use of each type of drug than those exhibiting higher academic performance. That is, adolescents who have repeated a greater number of grades, and who have low grades will tend to have a higher usage of each substance than those adolescents with the opposite characteristics.

H_2: Adolescent children who have a negative attitude toward school will exhibit greater use of each drug than will those with a positive attitude toward school. That is, adolescents with greater substance usage will tend to be characterized by a higher rate of absenteeism, low test anxiety, lower number of hours devoted to studying, more frequent school changes, a dislike for school, a preference for going to work rather than school, few friends at school (both among peers and teachers), and a preference for public rather than private education.

H_3: Adolescent children who have plans for dropping out of school, or do not plan to attend college, will tend to have greater usage of each type of drug than would those who plan to go on to higher education. That is, adolescents who do not expect to attain a higher level of education, who favor dropping out of school, and who do not desire a college education for its benefits, will have a greater usage of each type of substance.

H_4: Adolescent children who plan on lower status occupations will tend to have greater usage of each type of drug than those adolescents who have plans for higher status occupations. That is, adolescents who are characterized as planning to enter the military before or

immediately after graduation from high school, as expecting low status occupations of unskilled or non-professional occupations, and as expressing little need for a secure and important occupation, will exhibit greater usage of each type of substance than will those adolescents with opposite characteristics.

H_5: There is a linear combination of certain academic characteristics which will distinguish among those who use one type of drug (or use no drugs), exclusively, from those who use another.

METHODOLOGY

Sample

The subjects used in this study consist of a subsample of 635 people drawn from a population of over 5,000 Puerto Rican young people who were initially studied in 1968 by Nuttall and his colleagues (11). During the academic year 1967-68, a study was conducted of all students enrolled in the secondary schools, both public and private, in the Bayamón Norte school district in Bayamón, Puerto Rico. The subsample of 635 were interviewed in 1975, and at that time filled out a questionnaire. The data for the present study is based on the 1975 data when these young people ranged in age from about 19 to about 25.

The subsample to be interviewed were selected so as to span a wide spectrum of drug use patterns, but with an overemphasis on young people with heavier use patterns. The sampling procedure involved developing two groups of individuals; one group considered to be at high risk of heavy drug use, and the other group considered to be at low or normal risk of heavy drug use.

The high risk group was composed in two ways. The first set of people were those identified as being, or likely to be, involved with drugs or who had difficulties with the police. Difficulty with the police was determined according to records from drug prevention centers, treatment centers, police records, newspaper articles, Narcotics and Drug Addiction Division (Commonwealth of Puerto Rico) records, lists of clients seen by school social workers, and siblings of people whose names appeared in any of these sources.

The second set of people selected as high risk were those whose names were developed as a result of a discriminant function analysis using the initial set of high risk people as a criterion group (9). The 1968 data was used as predictors in this discriminant function and the specific variables entering into the equation were: grade level, parental lax discipline, time spent in their present community, Cattell HSPQ Factor I (Tough Minded vs Tender Minded), years father had been home, level of education expected, parental hostile psychological control, and single family versus housing project type of housing. Individuals who were predicted to be similar to those whose names came from the various records were then added to the set of possibly high risk people to be interviewed.

The normal or low risk people were obtained by taking a systematic sample of every tenth person in the 5,000 or so people in the 1968 data base. These records were ordered by school, grade, homeroom, and alphabetically within homeroom so that the systematic sample was stratified by these factors. If a selected person had already been selected as high risk, the next name was selected for the low risk sample. Roughly half of the subsample actually interviewed were from the high risk group and half were from the low risk group.

Interviewers

Six people, three women and three men, conducted the interviews. Two of the interviewers had bachelor's degrees in social work and two had bachelor's degrees in psychology. All were native Puerto Ricans and the interviews and questionnaires were all done in Spanish. Two of the male interviewers were ex-drug addicts and the remaining four interviewers had worked in drug related settings either as therapists, administrators, or as researchers. The interviewers were not told of the high-risk, low-risk dichotomy nor were they told which respondents were high or low risk. They were assigned interviews on a geographic basis.

Measures

Academic Characteristics Variables

The academic characteristics variables represent some sixteen self-reported measures which were obtained directly or recoded from items surveyed in 1968. Academic characteristics have been organized according to the four dimensions of:

- academic performance measures,
- attitude toward school measures,
- measures for educational aspirations, and
- measures for occupational aspirations.

Operational definitions for these variables will be given below for those variables within each of these four dimensions which were used in this study.

1. Academic performance measures

These measures include variables for repeated grades and academic achievement.

a. Number of repeated grades - indicated by the following question:

"How many grades or half-grades in school have you failed and had to repeat?

(1) none, (2) one, (3) two, (4) three, (5) four or more

b. Grades

"My grades in all courses since entering junior or senior high school have been:"

(1) all A's or equivalent
(2) mostly A's or equivalent
(3) mostly A's or B's or equivalent
(4) mostly B's and C's or equivalent
(5) mostly C's and D's or equivalent
(6) mostly D's or below or equivalent

2. Attitude toward school measures

These measures include variables for assessing the adolescent's disposition toward school through items dealing with absenteeism, the amount of studying, actual attitudes toward school, work, and friends at school, the frequency of school changes, test anxiety, and preference for public versus private education.

a. Days absent

"How many days were you absent fro school in the last year?"

(1) none, (2) one to four, (3) five to nine, (4) ten to fourteen, (5) fifteen to nineteen, (6) twenty or more days

b. Hours of study per week

"On the average, how many hours do you study each week? Include study periods during school."

(1) none, (2) about 1 - 4 hours/week, (3) about 5 - 9 hours/week, (4) about 10 - 14 hours/week, (5) about 15 - 19 hours/week, (6) about 20 or more hours per week.

c. Number of school changes

"How many times have you changed schools since starting the first grade (not counting promotions from one school to another)?"

(1) never, (2) once, (3) twice, (4) three times, (5) four times, (6) five times, (7) six or more times.

d. Likes school

Tannenbaum (1961) scale score for liking school (See Nuttall & Nuttall (8))

e. Prefers school to work

Tannenbaum (1961) scale for prefering schoo to work (See Nuttall & Nuttall (8))

f. Many friends at school

Tannenbaum (1961) scale score for measuring the number of friends among peers and teachers at school (See Nuttall & Nuttall (8))

g. Test anxiety

Saronson's Test Anxiety Scale (1964) for children (See Nuttall & Nuttall (8))

h. Preference for private or public education

Scale was created by factor analysis and is the sum of the score on the following six items:

1. Do you prefer public or private education?

   (1) public
   (2) private

2. The respondent's choice of:
   (1) strongly agree, (2) agree, (3) disagree, (4) strongly disagree

   a. there are better students in public schools
   b. private schools teach too much religion
   c. most people are better in public schools
   d. there are too many nuns in private schools
   e. all children should attend public school

3. Educational plans and expectations measures

These measures include variables dealing with the respondent's expected level of education, their attitude toward staying in school as opposed to dropping out, and their desire for and value of a college education.

a. Expected level of education

"What is the greatest amount of education you expect to have during your life?"

(1) I don't expect to finish high school
(2) I expect to graduate from high school
(3) I expect to obtain vocational, business school, or junior college training
(4) I expect to obtain some (less than four years) regular college training
(5) I expect to graduate from a regular four year college
(6) I expect to study for advanced college degrees

b. Wants to stay in school as opposed to dropping out

"If something happened and you had to stop school now, how would you feel?"

(1) very happy - I'd like to quit
(2) I wouldn't care one way or the other
(3) I would be disappointed
(4) I'd try hard to continue
(5) I would do almost anything to stay in school

c. Desires or values a college education

Scale was created by factor analysis (See Nuttall & Nuttall (8))

4. Occupational plans and expectation measures

These measures include variables which deal with the respondent's plans for military service, expected occupational status, and need for a secure and important occupation.

a. Entering the military soon

"What do you expect to do about military service?"

(1) never serve
(2) enlist only after some college training
(3) enlist right after high school
(4) quit high school and enlist

b. Expected occupational status

"Below is a long list of different occupations in alphabetical order. Please look it over carefully and choose the one single occupation you would expect to make your career after you have completed your education"

Some 61 occupations were then re-coded to:

(1) high prestige professional (physician, government leader, etc.)
(2) professonal and managerial - medium high prestige (architect, engineer, lawyer, etc.)
(3) professional, semi-professional and allied scientific (clergyman, nurse, pilot, etc.)
(4) technical (accountant, artist, businessman, etc.)
(5) skilled (craftsman, secretary, skilled worker, etc.)
(6) semi-skilled (barber, waiter or waitress, semi-skilled worker, etc.)
(7) unskilled (cane worker, or welfare, or ordinary worker or laborer)

c. Need for a secure and important occupation

Scale was created by factor analysis (See Nuttall & Nuttall (8))

5. School Records Variables

The independent variables used in this section on correlations between school records and the dependent measures for drug usage or involvement were obtained in 1975 from the actual school records of the respondents for grades seven through twelve (or as high a grade as they completed before dropping out). Such measures include SAT scores, the grade-point average for each semester, the number of subjects failed each semester, and a variety of other school related data.

Drug Use and Involvement Measures

The measures in this section were obtained by confidential questionnaires filled out by the respondents in 1975-76 when they were interviewed. The questions came from Johnston (5). The dependent measures were: self-reported degree of usage of heroin, marijuana, other drugs (amphetamines, barbiturates, hallucinogens, cocaine), alcohol, and cigarettes; knowledge of heroin or alcohol related vocabulary; whether or not the respondent had ever tried heroin, marijuana, or cigarettes; their degree of approval of heroin, marijuana,

other drugs, alcohol, or cigarettes; and the number of their friends whom they said used heroin, marijuana, other drugs, alcohol or cigarettes.

These measures were obtained from a questionnaire filled out after the end of the interview and placed in an envelope which had an identification number, but not a name on it. The interviewer did not ask directly for the answers to these questions. The questions are given below, as they were presented for heroin but apply to the drugs where noted above.

a. Ever tried heroin

"How old were you when you first did each of the following? Put 'never' if you have never done this activity."

Used heroin ___(age)___ (Coded as ever-used vs. never used)

b. Approval of heroin use

"People differ in how they feel about individuals doing certain things. How do you feel about people doing each of the following things?

Trying heroin (smack, horse, 'H') once or twice

Taking heroin regularly

(1) strongly approve, (2) approve, (3) I feel neutral (4) disapprove, (5) strongly disapprove

c. Number of friends estimated using heroin

"How many of your friends would you estimate take heroin (smack, horse, 'H')?"

(1) all, (2) most, (3) some, (4) a few, (5) none

d. Self-reported heroin use

"Previous to this past year, how often have you done this (taken heroin) for other than medical reasons?"

(1) nearly every day, (2) once or twice a week, (3) once or twice a month, (4) 3-10 times a year, (5) once or twice a year, (6) never.

e. Heroin vocabulary

"Now I would like to ask you the definitions of the following words. What does _____ mean?"
copping, hammering, hustling, fix, pep pills, stealing to buy drugs, drug pusher, high, hit, grass, snort, the life, nod, junkie
(These words were given in the Spanish language colloquial expressions. The score for the variable was the number of words correct for the heroin jargon.

Statistical Analyses

Correlational analyses were used to test, in terms of magnitude and sign, the first four hypotheses dealing with the relationships among the educational variables and various drug use and involvement measures.

Stepwise multiple discriminant function analysis was utilized in determining the disposition of the fifth hypothesis for predicting the type of drug used exclusively as predicted by the academic variables.

RESULTS

Correlational Analysis Results

There were over 100 significant correlations found between academic characteristics and various drug measures, and equally as many between school records variables and drug measures. In order to economize on space, the significant results will be summarized below, for each drug type. It should be noted that most correlations with regard to academic characteristic variables and drug measures were of the magnitude .10 to .20 in absolute value. For school record variables and drug measures, the significant correlations ranged from .20 to .30 in absolute value, with few exceptions.

Heroin Measures

In terms of significant results for young women, those who reported greater heroin involvement also reported being absent more often and having a lesser need for a secure occupation.

For male adolescents, those reporting greater heroin use or involvement repeated grades more often, attained lower grades, were absent more often, had lower test anxiety, studied less, disliked school and preferred going to work, and reported a lesser need for a secure occupation.

With respect to school records, both female and male adolescents who had higher heroin use or involvement had significantly lower SAT scores, lower achievement test scores, and lower grade point averages.

Marijuana Measures

Female adolescents with higher marijuana usage and involvement reported: attaining higher grades, which is contrary to the hypothesized relationship; were absent more often; changed schools more frequently; disliked school and reported having few friends at school; but preferred school to work (contrary to that hypothesis); and again contrary to hypothesis, they expected higher levels of education and higher status occupations.

Male adolescents with more frequent marijuana use or involvement, behaved as hypothesized with respect to all significant results. They reported: a greater number of repeated grades; lower grades; being absent more often; changing schools more often; disliking school; having few friends at school; expecting lower levels of education; and planning to enter the military directly after leaving or graduating from school.

Analysis of school records variables and marijuana use showed similar conflicting results for young males and females. Both sexes, those with greater marijuana use and involvement had higher SAT scores, and higher achievement test scores but, especially for males, their academic performance was poorer than that of their counterparts who had lesser involvement with marijuana.

Other Drugs Measures

Female adolescents who reported greater involvement with other drugs (amphetamines, barbiturates, cocaine, and hallucinogens) indicated lower test anxiety, changing schools more often, expectations for higher levels of education (contrary to hypothesis); and had less of a need for a secure occupation.

All the significant results for young males were as hypothesized with those who had greater other drug involvement reporting a greater number of repeated grades; lower grades in school; greater absenteeism; a dislike for school; few friends in school; expectations for less education; and a desire to drop out of school.

In terms of school records, both female and male adolescents with greater other drug involvement were characterized as having consistently poorer academic performances with lower grade-point averages and lower achievement test scores.

Alcohol Measures

Female adolescents with more frequent alcohol involvement indicated: higher grades (contrary to hypothesis); a dislike for school; having few friends at school; a preference for public rather than private schools; and (contrary to hypothesis) they held aspirations for higher levels of education and for higher status, more secure occupations.

Male adolescents with greater alcohol involvement behaved somewhat differently than did the high involvement females in that they reported: being absent more often; lower on test anxiety; more frequent school changes; disliking school, but preferring school to work; preferring public to private education; wanting to stay in school and desiring a college education (contrary to hypothesis); and planned to enter the military soon after leaving school.

For the school record measures, both female and male adolescents with greater alcohol involvement had higher aptitude and achievement test scores, and, especially for females, showed superior academic performance (contrary to hypothesis). Despite the overall better grades by males who had greater alcohol involvement, they were more likely to fail subjects at certain times than were those with less alcohol involvement.

Cigarette Measures

Female adolescents with greater cigarette use and involvement reported: repeating fewer grades and attaining higher grades, both of which were contrary to hypotheses; were absent more often; disliked school; and had few friends at school.

Again, the results for male adolescents are somewhat different from those for females in that young males who had greater use and involvement with cigarettes indicated: repeating grades more often; being absent more frequently; attaining lower grades; changing schools more often; prefering work to school; having few friends at school; and having a lesser need for a secure and important occupation.

In terms of school records, differences were found between female and male adolescents. Female adolescents with greater cigarette use and involvement had somewhat poorer academic performance but consistently higher achievement and aptitude test scores. Male adolescents with greater cigarette involvement had overall poorer academic performance but had higher scores on the Spanish Achievement Test.

Discriminant Function Analyses Results

For female adolescents, no significant discriminant functions were found to discriminate among the groups of users who predominantly used (1) Cigarettes, (2) Alcohol, (3) Marijuana, (4) Other Drugs, or (5) None. No Heroin group was formed because of the few number of people who would be in that group.

The discriminant function analysis results for young men provided two significant functions. Wilks' lambda was .590 ($p < .001$) for the analysis and eleven academic characteristics entered the analysis.

these results.

Insert Table 1 about here.

The standardized coefficients making up the two significant discriminant functions are presented in the top half of Table 1 and the means for the five groups are presented in the bottom half of the table.

From this table is can be seen that the occupational aspiration variables contributed the most to both discriminant functions. Based on the standardized coefficients and the location of the drug preference groups in the two-dimensional space (See Figure 1) certain substantive interpretations can be made. The first discriminant function contrasts the users of the other drugs (amphetamines, barbiturates, cocaine, and hallucinogens) versus the other groups, especially versus the people who prefer to use no drugs, or cigarettes or alcohol only. The second discriminant function contrasts alcohol users with marijuana users. Thus the first function contrasts illegal drugs with legal drugs (or no drugs) while the second contrasts the two milder, but very common mood affecting drugs of alcohol and marijuana.

The first function has major contributions from occupational and educational aspirations indicating that those who tend to use the illegal drugs were best predicted by having lower aspirations for educational and occupational achievement.

For the second discriminant function, the discrimination is between those who use marijuana primarily as opposed to those who use alcohol. Young men who preferred the use of marijuana rather than alcohol were characterized as expecting lower status occupations but not planning to enter the military soon after high school. They also were absent less frequently but had a lesser desire to stay in school.

DISCUSSION AND CONCLUSIONS

The correlational analysis results indicated that relationships between educational variables and drug use or involvement varied according to the drug examined and the sex of the subjects. The magnitude of the correlations indicated weak, but significant relationships. The particular patterns of drug involvement relationships are interesting to note.

For academic performance, female adolescents who had greater use or involvement with marijuana, alcohol, and cigarettes were likely to have been superior students in terms of aptitude, achievement, and grades. Male adolescents, on the other hand, exhibited opposite tendencies in that those with greater use or involvement with heroin, other drugs, marijuana and cigarettes exhibited consistently poorer academic performance.

With respect to attitude toward school measures, there was a consistent finding for both males and females that greater drug use or involvement was related to a negative attitude toward school.

In terms of educational aspirations, the results for females again proved to be inconsistent with the hypothesized relationships in that those young women with higher educational aspirations also exhibited greater use or involvement with marijuana, other drugs, and alcohol. For males, a result contrary to that hypothesized was found in that higher alcohol use was related to higher educational aspirations.

For occupational aspirations females who used or were involved with marijuana and alcohol more often held aspirations for higher status occupations. For males, the results were inconsistent and somewhat contradictory but in general for the drugs of marijuana, alcohol, and cigarettes, those who exhibited higher usage were in less need of a secure occupation.

The results of the discriminant analysis proved non-significant for the females but found two clear functions for the males. Figure 1 illustrates that there are four general groups, Cigarette and No Drug users who were both low on both functions; Alcohol users who were high on the second function, low on the first; Marijuana smokers who were quite low on the second function; and Other Drug users who were quite high on the first function. The first function is seen as discriminating illegal from legal drugs, and the second as distinguishing between alcohol users and marijuana users.

In conclusion, it appears that it is quite necessary to examine the sex of the respondent in formulating a clear picture of the academic variables relationship to drug usage patterns. Young Puerto Rican women who use various drugs seem to be of a higher ability group and probably are of higher social class, but still do not like school much. For the males, increased drug usage goes with lower academic and occupational aspirations and lower academic achievement, as had been predicted. For both sexes, a negative attitude toward school led to greater use and involvement with drugs.

Table 1

DISCRIMINANT FUNCTION ANALYSES RESULTS FOR MALES PREDICTING DRUG USAGE PREFERENCES FROM ACADEMIC VARIABLES

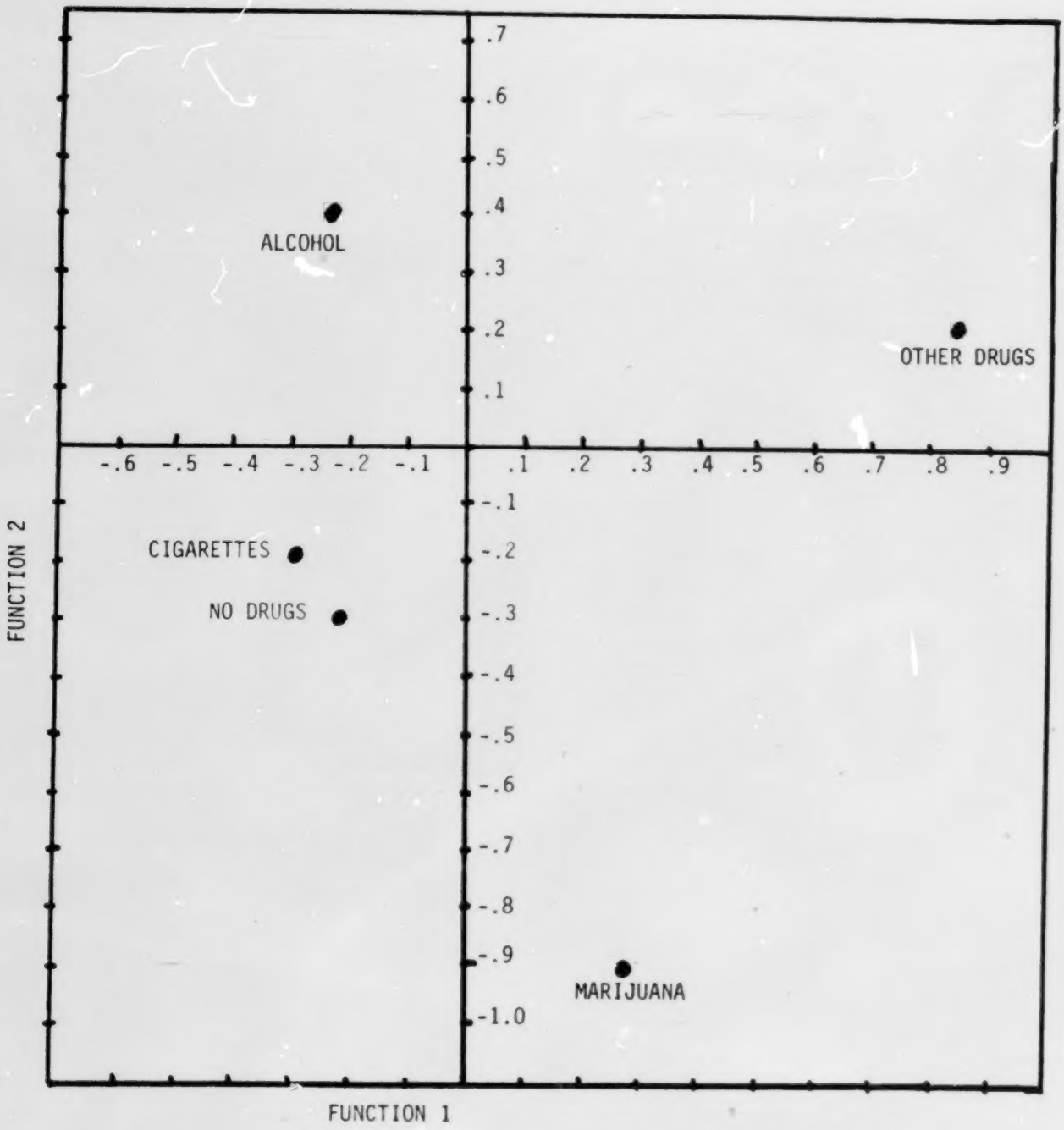
Variables	Standardized Coefficients Function 1	Function 2
No. of repeated grades	-.75	-.01
No. of days absent	1.07	.60
No. hours of study per week	.78	.02
High grade-point average	.03	.19
No. of school changes	.26	.47
Expected educational level to be attained	-.88	-.43
Wants to stay in school	-.50	.40
Enter military soon	1.04	.91
High expected occupational status	-1.29	1.00
Prefers school to work	-.06	-.45
Test Anxiety	-.22	-.29

Groups	Group Centroids Function 1	Function 2
No drugs	-.22	-.30
Cigarettes Preferred	-.31	-.19
Alcohol Preferred	-.26	.40
Marijuana Preferred	.28	-.99
Other Drugs Preferred	.84	.21

Wilk's Lambda = .59
% Cases correctly classified =44%
% Possible correctly classified by chance = 24%
% Increase above chance classification = 20%
Best prediction by discriminant analysis was for Alcohol Preferred = 74% correct.
Worst prediction by discriminant analysis was for Cigarettes = 0% correct.

Figure 1

PLOT OF DISCRIMINANT FUNCTION RESULTS FOR MALES



REFERENCES

1. Blum, R.H., and Associates, Students and Drugs, San Francisco: Jossey-Bass, Inc., 1970.

2. Carney, P.A., Timms, M.W. & Stevenson, R.D. The social and psychological background of young drug abusers in Dublin. British Journal of Addiction, 1972, 56, 199-207.

3. Hager, D.L. Adolescent drug use in middle America: Social-Psychological correlates (Doctoral dissertation, Michigan State University, 1970) Dissertation Abstracts International, 1970, 6158-A.

4. Hemminski, E. Rissanan, A., & Mattila, A. Drug use among school children in Helsinki, 1970. British Journal of Addiction, 1973, 68 (2), 159-165.

5. Johnston, L. Drugs and American Youth. Ann Arbor: Institute for Social Research, 1973.

6. Kaplan, H.B. and Myerowitz, J.H. Social and psychological correlates of drug abuse. Social Science and Medicine, 1970, 4, 203-225.

7. Mitchell, K.R., Kirby, R.J. and Mitchell, D.M. Notes on sex differences in student drug usage. Psychological Reports, 1970, 27, 116.

8. Nuttall, R.L. and Nuttall, E.V. Psycho-Social Precursors of Drug Use In Puerto Rico, Final Report NIDA Grant No. 5 R01 DA 00738, Laboratory for Statistical and Policy Research, Boston College, Chestnut Hill, Mass. 02167, 1977.

9. Nuttall, R.L., Nuttall, E.V., Ostermann, G., Zayas, Y., and Muñoz, R. Identifying individuals at risk among Puerto Rican adolescents. Paper read at the National Drug Abuse Conference, March 1976, New York, N.Y.

10. Rosenberg, J.S., Kasl, S.V. and Berberian, R.M. Sex differences in adolescent drug use: Recent trends. Addictive Diseases, 1974, 1, 73-96.

11. Tec, N. Some aspects of high school status and differential involvement with marijuana: A study of suburban teenagers. Adolescence, 1972, 6 (25), 1-28.

12. Wiener, J.M. & Egan, J.H. Heroin addiction in an adolescent population. Journal of the American Academy of Child Psychiatry, 1973, 12, 48-58.